Additions, Changes and/or Deletions to the Mississippi Minimum Standards for School Buses manufactured On or After October 1, 2006.

Page 5: Definition of School Bus

CHANGE FROM:

DEFINITIONS OF SCHOOL BUSES

TYPE A

The Type "A" school bus is a conversion or body constructed upon a van-type or cutaway -front-section vehicle with a left side driver's door, designed for carrying more than 10 persons. This definition shall include two classifications: Type A-I, with a Gross Vehicle Weight Rating (GVWR) over ten thousand pounds (10,000); and Type A-II, with a (GVWR) of ten thousand pounds (10,000) and under.

TYPE B

A Type "B" school bus is a conversion or body constructed and installed upon a van or front-section vehicle chassis, or stripped chassis, with a gross vehicle weight rating of more than ten thousand (10,000) pounds, designed for carrying more than ten (10) persons. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels.

TYPE C

A Type "C" school bus is a body installed upon a flat-back cowl chassis with a gross vehicle weight rating of more than ten thousand (10,000) pounds, designed for carrying more than ten (10) persons. All of the engine is in front of the windshield and the entrance door is behind the front wheels.

TYPE D

A Type "D" school bus is a body installed upon a chassis, with the engine mounted in the front, midship, or rear with a gross vehicle weight rating of more than ten thousand (10,000) pounds, designed for carrying more than ten (10) persons. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the bus, behind the rear wheels; or midship between the front and rear axles. The entrance door is ahead of the front wheels.

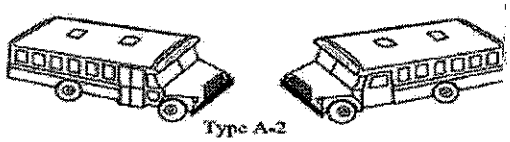
CHANGE TO READ:

DEFINITIONS OF SCHOOL BUSES

TYPE A

A Type A school bus is a conversion bus constructed utilizing a cutaway front section vehicle with a left side driver's door. This definition includes two classifications: Type A-1, with a Gross Vehicle Weight Rating (GVWR) of 14,500 pounds or less; and Type A-2, with a GVWR greater than 14,500 pounds and less than or equal to 21,500 pounds.

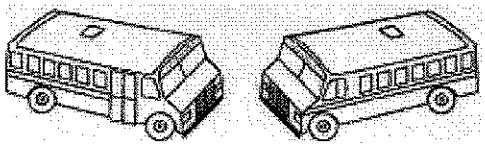
Type A-1



Type A-2

TYPE B

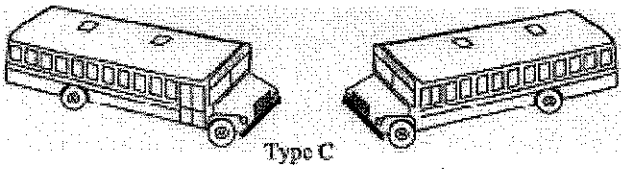
A Type B school bus is constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications: Type B-1, with a GVWR of 10,000 pounds or less, and Type B-2, with a GVWR greater than 10,000 pounds.



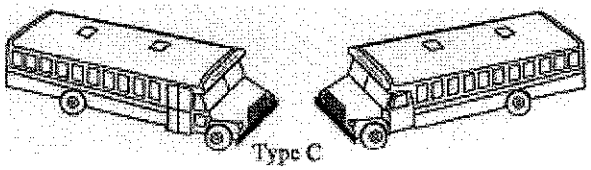
Type B

TYPE C

A Type C school bus is constructed utilizing a chassis with a hood and front fender assembly. The entrance door is behind the front wheels-also known as a conventional style school bus. This type also includes the cutaway truck chassis or truck chassis with cab with or without a left side door and with a GVWR greater than 21,500 pounds.



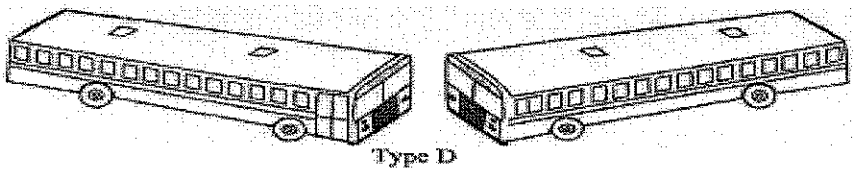
Type C
Conventional



Type C
Cutaway

TYPE D

A Type D school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels-also known as a rear engine or front engine transit style school bus.



Type D

RATIONALE: Allows for new classification of school buses consistent with the National School Transportation Specifications & Procedures dated May 2005.

Page 6: <u>Table of Capacity and Type</u>

CHANGE FROM:

Type C - Conventional Flat Face Cowl 35,47,53,59,65,71,77

CHANGE TO READ:

Type C - Conventional Flat Face Cowl 29,35,41,47,53,59,65,71,77

RATIONALE: All bus body companies now produce school buses with a capacity of both 29 and 41.

Page 13: <u>Governor</u>

CHANGE FROM:

An engine governor is permissible. When it is desired to limit road speed, a road speed governor should be installed.

When engine is remotely located from the driver, the governor shall be set so to limit engine speed to maximum revolutions per minute recommended

by the engine manufacturer, and a tachometer shall be installed so the engine speed may be known to the driver.

CHANGE TO READ:

An electronic engine speed limiter shall be provided and set to limit engine speed, not to exceed the maximum revolutions per minute, as recommended by the engine manufacturer.

RATIONALE: Consistent with National School Transportation Specifications & Procedures dated May 2005.

Page 14: <u>Instruments and Instrument Panel</u>

CHANGE FROM:

Instruments and gauges shall be mounted on the instrument panel in such a manner that each is clearly visible to the driver while seated in a normal driving position in accordance with School Bus Manufacturer Technical Council Design Objectives (SBMTC), 1996 edition.

CHANGE TO READ:

Instruments and gauges shall be mounted on the instrument panel in such a manner that each is clearly visible to the driver while seated in a normal driving position.

RATIONALE: SBMTC Design Objectives no longer addresses this issue.

Page 15: <u>Oil Filter</u>

CHANGE FROM:

An oil filter with replaceable element shall be provided and connected by flexible oil lines if it is not of built-in or engine-mounted design. The oil filter shall have a capacity of approximately one (1) quart.

CHANGE TO READ:

An oil filter with replaceable element shall be provided and connected by flexible oil lines if it is not of built-in or engine-mounted design. The oil filter shall have a capacity in accordance with the engine manufacturer's recommendation.

RATIONALE: Consistent with National School Transportation Specifications and Procedures (NSTSP) dated May 2005. Most engine

manufactures now require more than one quart of oil. Previous verbiage is misleading.

Page 16: Suspension System

CHANGE FROM:

2. Steel leaf rear springs shall be a progressive rate or multi-stage design. Front leaf springs shall a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf.

CHANGE TO READ:

2. Rear leaf springs shall be a progressive rate or multi-stage design. Front leaf springs shall a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf.

RATIONALE: The use of steel has been deleted to allow for the installation of an air ride suspension system.

Page 21: Construction

CHANGE FROM:

Body joints present in the portion of the Type A-II school bus body furnished exclusively by the body manufacturer shall conform to the performance requirements of Federal Motor Vehicle Safety Standard (FMVSS) 221, "School Bus Body Joint Strength." This does not include the body joints created when body components are attached to components furnished by the chassis manufacturer.

CHANGE TO READ:

Body joints present in the portion of the Type A-I, A-II, B, C, and D school bus body furnished exclusively by the body manufacturer shall conform to the performance requirements of FMVSS 221, "School Bus Body Joint Strength." This does not include the body joints created when body components are attached to components furnished by the chassis manufacturer.

RATIONALE: All school bus bodies must meet the requirements of FMVSS 221.

Page 21: Crossing Control Arm

CHANGE FROM:

The crossing control arm shall extend approximately seventy-two inches (72") from the front bumper when in the extended position.

CHANGE TO READ:

The crossing control arm shall extend a minimum of 70 inches (measured from the bumper at the arm assembly attachment point) when in the extended position. The crossing control arm shall not extend past the end of the bumper when in the stowed position.

RATIONALE: The word approximately interjected a certain ambiguity into the old language. The new language is consistent with the National School Transportation Specification and Procedures dated May 2005.

Page 26: <u>Emergency Exits</u>

CHANGE FROM:

3.d. Simple release handles shall be provided on roof exits, permitting operation as emergency exit(s), assessable inside and outside the vehicle. Roof exits shall be installed, hinged toward the front.

CHANGE TO READ:

3.d. Simple release handles or knobs shall be provided on roof exits, permitting operation as emergency exit(s), assessable inside and outside the vehicle. Roof exits shall be installed, hinged toward the front.

RATIONALE: Allows for both handles and knobs

Page 27: <u>Floors</u>

CHANGE FROM:

4. On Type A-I, B, C, and D buses, a screw- down plate that is secured and insulated shall be provided to access the fuel tank sending unit.

CHANGE TO READ:

4. On Type B, C, and D buses, a screw-down plate that is secured and insulated shall be provided to access the fuel tank sending unit.

RATIONALE: On Type A-I buses, the fuel sending unit cannot be repaired from the floor. All repair work on those type vehicles require going under the bus.

Page 27: Handrails

ADD TO BODY STANDARDS:

At least one (1) handrail shall be installed. The handrail(s) shall assist passengers during entry or exit, and shall be designed to prevent entanglement, as evidenced by the passing of the National Highway Traffic Safety Administration (NHTSA) string and nut test.

RATIONALE: This statement adds the requirements for an important safety feature not previously required. This language is consistent with NSTSP dated May 2005.

Page 29: Identification

CHANGE FROM:

3. d. Manufacturer, dealer or school identification or logos.

CHANGE TO READ:

3. d. Manufacturer, dealer or school identification.

RATIONALE: To prevent school districts from placing individual school logos and/or advertisements on the exterior of the school bus.

Page 31: Lamps and Signals

CHANGE FROM:

Body instrument panel lights shall be controlled by an independent rheostat switch.

CHANGE TO READ:

Body instrument panel lights shall be controlled by a rheostat switch.

RATIONALE: New language will allow both body and chassis instrument panels to be controlled by a single rheostat switch. This new language removes the ambiguity as to whether or not this common practice is allowed.

Page 34: **Overall Length**

CHANGE FROM:

The overall length of the bus shall not exceed forty feet (40'), excluding accessories.

CHANGE TO READ:

The overall length of the bus shall not exceed forty five (45'), excluding accessories.

RATIONALE: Consistent with NSTSP dated May 2005.

Page 35: **Seatbelt for Driver**

CHANGE FROM:

A Type two (2) lap belt/shoulder harness seat belt shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor (ELR) for the continuous belt system. On all buses except Type A equipped with standard chassis manufacturer's driver's seat, the lap portion of the belt shall be guided or anchored to prevent the driver from sliding sideways under it. The lap belt/shoulder harness shall be designed to allow for easy adjustment in order to fit properly and effectively protect drivers varying from fifth (5^{th}) percentile female to ninety-fifth (95^{th}) percentile male.

CHANGE TO READ:

A Type two (2) lap belt/shoulder harness seat belt shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor (ELR) for the continuous belt system. On all buses except Type A and Type C Cutaway buses equipped with standard chassis manufacturer's driver's seat, the lap portion of the belt shall be guided or anchored to prevent the driver from sliding sideways under it. The lap belt/shoulder harness shall be designed to allow for easy adjustment in order to fit properly and effectively protect drivers varying from fifth (5^{th}) percentile female to ninety-fifth (95^{th}) percentile male.

RATIONALE: Today's school market includes van cutaway chassis and medium duty trucks cutaway chassis which are equivalent to a Type C school bus in terms of Gross Vehicle Weight Rating. The new category was approved at the 14^{th} National Conference on School Transportation.

Page 36: Seat and Crash Barriers

CHANGE FROM:

6. Type A-II school bus bodies shall be equipped with restraining barriers conforming to FMVSS-222.

CHANGE TO READ:

6. *All school buses shall be equipped with restraining barriers conforming to FMVSS-222.*

RATIONALE:Consistent with National School Transportation Specifications & Procedures dated May 2005.

Page 38: Tailpipe

CHANGE FROM:

2. Tailpipe shall exit to the left of the emergency exit door in the rear of vehicle or to the left side of the bus. Tailpipe shall not exit beneath any fuel filler location or beneath any emergency door. All types A and B may be manufacturer's standards.

CHANGE TO READ:

2. *Tailpipe shall exit to the left or right of the emergency exit door in the rear of vehicle or to the left side of the bus. Tailpipe shall not exit beneath any fuel filler location or beneath an emergency door. All types A and B may be manufacturer's standards.*

RATIONALE: New emission standards for 2007 and beyond makes it more difficult for bus manufacturers to safely route exhaust/tailpipe. The new language will allow more options for the manufacturers and is consistent with the NSTSP dated May 2005.

Page 40: Windshield Wipers

CHANGE FROM:

2. The wipers shall be operated by one (1) or more air or electric motors of sufficient power to operate wipers. If one (1) motor is used, the wipers shall work in tandem to give full sweep of the windshield.

CHANGE TO READ:

2. *The wipers shall be operated by one (1) or more air or electric motors of sufficient power to operate wipers. If one (1) motor is used, the wipers shall work in tandem to give full sweep of the windshield. Wiper blade shall not obstruct the driver's view when moving.*

RATIONALE: This sentence was added because one particular manufacturer supplies buses in which the windshield wiper was stop/parked in the middle of the driver's normal sight line. By adding this verbiage, it makes it clear that this action in not acceptable.

Page 43: Minimum Standards for Specially Equipped School Buses

DELETE ENTIRE SECTION

ADD:

Entire section from the National School Transportation Specifications & Procedures dated May 2005. (See attachment A)

RATIONALE: Consistent with NSTSP dated May 2005, which was extensively revised to be in accordance with the FMVSS 403 and 404 (adopted in December 2004).

Page 61: Air Conditioner

CHANGE FROM:

1.a. Alternator – Type A buses equipped with air conditioning shall be furnished with an alternator with a minimum output rating of one hundred thirty (130) amperes. Type B, C and D buses equipped with air conditioning shall be furnished with an alternator with a minimum output rating of one hundred sixty (160) amperes. Type A buses equipped with air conditioning and wheelchair lifts shall be furnished with manufacturer's largest optional output alternator. Type B, C and D buses equipped with air conditioning and wheelchair lifts shall be furnished with alternators with a minimum output rating of one hundred and sixty (160) amperes.

CHANGES TO READ:

1.a. Alternator – Type A buses equipped with air conditioning shall be furnished with an alternator with a minimum output rating of one hundred thirty (130) amperes. Type B, C and D buses equipped with air conditioning shall be furnished with an alternator with a minimum output rating of two hundred (200) amperes. Type A buses equipped with air conditioning and wheelchair lifts shall be furnished with manufacturer's largest optional output alternator. Types B, C and D buses equipped with air conditioning and wheelchair lifts shall be furnished with alternators with a minimum output rating of two hundred (200) amperes:

RATIONALE: A higher ampere is needed for those buses equipped with an air conditioner.

Page 64: <u>Crossing Control Arm Magnetic/Stowing Device</u>

DELETE SECTION

RATIONALE: It is now standard equipment to be consistent in NSTSP.

Page 66: <u>Stop Arm, Air, or Vacuum Operator</u>

CHANGE FROM:

An air or vacuum operated stop arm is optional on Type A, B, C, and D buses. The stop arm shall comply with FMVSS.

CHANGE TO READ:

An air operated stop arm is optional on Type A, B, C, and D buses. The stop arm shall comply with FMVSS.

RATIONALE: Vacuum operated stop arms are no longer optional or available.

(Attachment A)

SPECIALLY EQUIPPED SCHOOL BUS SPECIFICATIONS

INTRODUCTION

Equipping buses to accommodate students with disabilities is dependent upon the needs of the passengers. While one bus may be fitted with a lift, another may have belts installed to secure child seats. Buses so equipped are not to be considered a separate class of school bus, but simply a regular school bus that is equipped for special accommodations.

The specifications in this section are intended to supplement specifications in the chassis and body sections. In general, specially equipped buses shall meet all the requirements of the preceding sections, plus those listed in this section. It is recognized that the field of special transportation is characterized by varied needs for individual cases and by rapidly emerging technologies for meeting individual student needs. A flexible, "common sense" approach to the adoption and enforcement of specifications for these vehicles, therefore, is prudent.

As defined by 49 Code of Federal Regulations (CFR) §571.3, *"Bus* means a motor vehicle with motive power, except a trailer, designed for carrying more than ten persons" (eleven or more including the driver). This definition also embraces the more specific category, *school bus*. Vehicles with ten or fewer occupant positions (including the driver) are not classified as buses. For this reason, the federal vehicle classification, *multipurpose passenger vehicle* (49 CFR § 571.3), or MPV, must be used by manufacturers for these vehicles in lieu of the classification *school bus*. The definition of *designated seating position* in 49 CFR § 571.3 states that, in the case of "vehicles sold or introduced into interstate commerce for purposes that include carrying students to and from school or related events" and which are "intended for securement of an occupied wheelchair during vehicle operations," each wheelchair securement position shall be counted as four designated seating positions when determining the classification (whether *school bus* or *MPV*). This classification system does not preclude state or local agencies or these national specifications from requiring compliance of school bus-type MPVs with the more stringent federal standards for school buses. The following specifications address modifications as they pertain to school buses that, with standard seating arrangements prior to modification, would accommodate eleven or more occupants including the driver. If by addition of a power lift, wheelchair positions or other modifications, the capacity is reduced such that vehicles become MPVs, the intent of these specifications is to require these vehicles to meet the same specifications they would have had to meet prior to such modifications, and such MPVs are included in all references to school buses and requirements for school buses which follow.

DEFINITION

A *specially equipped school bus* is any school bus that is designed, equipped and/or modified to accommodate students with special transportation needs.

GENERAL REQUIREMENTS

A. Specially equipped school buses shall comply with the *National School Transportation Specifications & Procedures* and with the Federal Motor Vehicle Safety Standards (FMVSS) applicable to their Gross Vehicle Weight Rating (GVWR) category.

B. Any school bus to be used for the transportation of children who utilize a wheelchair or other mobile positioning device, or who require life-support equipment that prohibits use of the regular service entrance, shall be equipped with a power lift, unless a ramp is needed for unusual circumstances related to passenger needs.

AISLES

All school buses equipped with a power lift shall provide a minimum 30-inch aisle leading from any wheelchair position to at least one emergency exit door. A wheelchair securement position shall never be located directly in front of (blocking) a power lift door location.

GLAZING

Tinted glazing may be installed in all doors, windows and windshields consistent with federal, state and local regulations.

IDENTIFICATION

Specially equipped school buses shall display the International Symbol of Accessibility below the window line. Such emblems shall be white on blue or black background, shall not exceed 12 inches square in size and shall be of a high-intensity retroreflective material meeting the requirements of Federal Highway Administration (FHWA) FP-85, *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.*

PASSENGER CAPACITY RATING

In determining the passenger capacity of a school bus for purposes other than actual passenger load (e.g., vehicle classification or various billing/reimbursement models), any location in a school bus intended for securement of a wheelchair during vehicle operation shall be regarded as four designated seating positions, and each lift area shall count as four designated seating positions.

POWER LIFTS AND RAMPS

A. The power lift shall be located on the right side of the bus body. **Exception**: The lift may be located on the left side of the bus if, and only if, the bus is only used to deliver students to the left side of one-way streets.

1. A ramp device may be used in lieu of a mechanical lift if the ramp meets all the requirements of the Americans with Disabilities Act (ADA) as found in 36 CFR §1192.23, *Vehicle ramp.*

2. A ramp device that does not meet the specifications of ADA, but does meet the specifications of paragraph C of this section, may be installed and used, when, and only when, a power lift system is not adequate to load and unload students having special and unique needs. A readily accessible ramp may be installed for emergency exit use. If stowed in the passenger compartment, the ramp must be properly secured and placed away from general passenger contact. It must not obstruct or restrict any aisle or exit while in its stowed or deployed position.

3. All specially equipped school buses shall provide a level-change mechanism or boarding device (e.g., lift or ramp), complying with paragraph B or C of this section, with sufficient clearances to permit a wheelchair user to reach a securement location.

B. Vehicle lift and installation

1. General: Vehicle lifts and installations shall comply with the requirements set forth in FMVSS 403, *Platform Lift Systems for Motor Vehicles*, and FMVSS 404, *Platform Lift Installations in Motor Vehicles*.

2. Design loads: The design load of the lift shall be at least 800 pounds. Working parts, such as cables, pulleys and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Non-working parts, such as platform, frame and attachment hardware that would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

3. Lift capacity: The lifting mechanism and platform shall be capable of operating effectively with a wheelchair and occupant mass of at least 800 pounds.

4. Controls: (See 49 CFR 571.403, S6.7, *Control systems*.)

5. Emergency operations: (See 49 CFR 571.403, S6.9, *Backup operation.*)

POWER LIFTS AND RAMPS

A. The power lift shall be located on the right side of the bus body. **Exception**: The lift may be located on the left side of the bus if, and only if, the bus is only used to deliver students to the left side of one-way streets.

1. A ramp device may be used in lieu of a mechanical lift if the ramp meets all the requirements of the Americans with Disabilities Act (ADA) as found in 36 CFR §1192.23, *Vehicle ramp.*

2. A ramp device that does not meet the specifications of ADA, but does meet the specifications of paragraph C of this section, may be installed and used, when, and only when, a power lift system is not adequate to load and unload students having special and unique needs. A readily accessible ramp may be installed for emergency exit use. If stowed in the passenger compartment, the ramp must be properly secured and placed away from general passenger contact. It must not obstruct or restrict any aisle or exit while in its stowed or deployed position.

3. All specially equipped school buses shall provide a level-change mechanism or boarding device (e.g., lift or ramp), complying with paragraph B or C of this section, with sufficient clearances to permit a wheelchair user to reach a securement location.

B. Vehicle lift and installation

1. General: Vehicle lifts and installations shall comply with the requirements set forth in FMVSS 403, *Platform Lift Systems for Motor Vehicles*, and FMVSS 404, *Platform Lift Installations in Motor Vehicles.*

2. Design loads: The design load of the lift shall be at least 800 pounds. Working parts, such as cables, pulleys and shafts, which can be expected to wear, and upon which the lift depends for support of the load, shall have a safety factor of at least six, based on the ultimate strength of the material. Non-working parts, such as platform, frame and attachment hardware that would not be expected to wear, shall have a safety factor of at least three, based on the ultimate strength of the material.

3. Lift capacity: The lifting mechanism and platform shall be capable of operating effectively with a wheelchair and occupant mass of at least 800 pounds.

4. Controls: (See 49 CFR 571.403, S6.7, *Control systems.*)

5. Emergency operations: (See 49 CFR 571.403, S6.9, *Backup operation.*)

6. Power or equipment failures: (See 49 CFR 571.403, S6.2.2, *Maximum platform velocity.*)

7. Platform barriers: (See 49 CFR 571.403, S6.4.7, *Wheelchair retention.*)

8. Platform surface: (See 49 CFR 571.403, S6.4.2, S6.4.3, *Platform requirements.*) (See also "Wheelchair or Mobility Aid Envelope" figure at the end of this subsection.)

9. Platform gaps and entrance ramps: (See 49 CFR 571.403, S6.4.4, *Gaps, transitions and openings.*)

10. Platform deflection: (See 49 CFR 571.403, S6.4.5, *Platform deflection.*)

11. Platform movement: (See 49 CFR 571.403, S6.2.3, *Maximum platform acceleration.*)

12. Boarding direction: The lift shall permit both inboard and outboard facing of wheelchair and mobility aid users.

13. Use by standees: Lifts shall accommodate persons who are using walkers, crutches, canes or braces, or who otherwise have difficulty using steps. The platform may be marked to indicate a preferred standing position. **Note:** This item refers to equipment specifications. (Also see section, TRANSPORTATION FOR STUDENTS WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS, Subsection D, *Special Equipment Use and Operation,* for applicable operational procedures stating that "During lift operations (including manual) no one shall be allowed to stand on the lift platform.")

14. Handrails: (See 49 CFR 571.403, S6.4.9, *Handrails.*)

15. Circuit breaker: A resettable circuit breaker shall be installed between the power source and the lift motor if electrical power is used. It shall be located as close to the power source as possible, but not within the passenger/driver compartment.

16. Excessive pressure: (See 49 CFR 571.403, S6.8, *Jacking prevention.*)

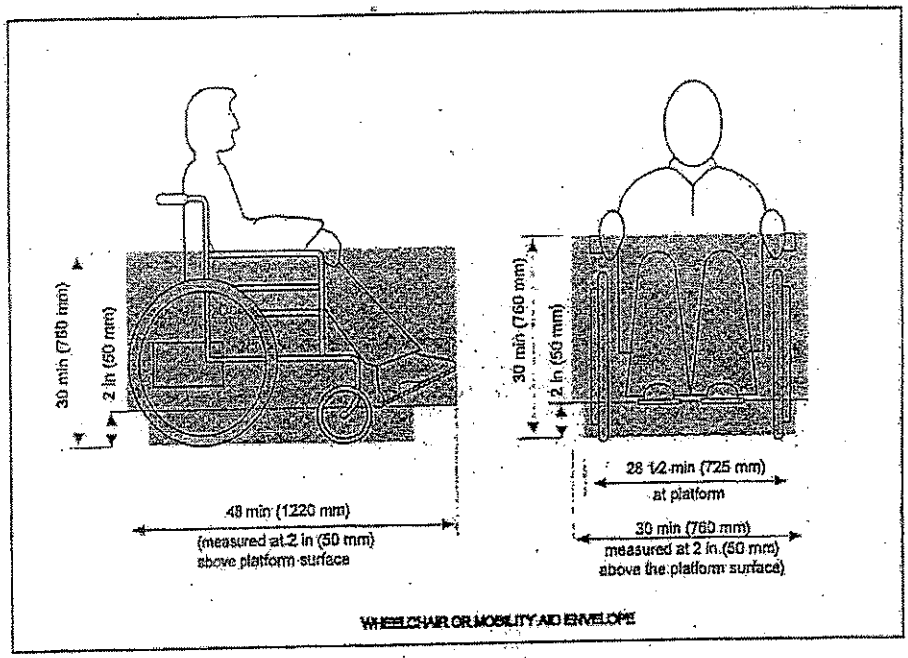
17. Documentation: The following information shall be provided with each vehicle equipped with a lift:

    (1) A phone number where information can be obtained about installation, repair and parts. (Detailed written instructions and a parts list shall be available upon request.)

(2) Detailed instructions regarding use of the lift shall be readily visible when the lift door is open, including a diagram showing the proper placement and positioning of wheelchair/mobility aids on the lift.

18. Training materials: The lift manufacturer shall make training materials available to ensure the proper use and maintenance of the lift. These may include instructional videos, classroom curriculum, system test results or other related materials.

19. Identification and certification: Each lift shall be permanently and legibly marked or shall incorporate a non-removable label or tag that states it conforms to all applicable requirements of the current National School Transportation Specifications and Procedures. In addition and upon request of the original titled purchaser, the lift manufacturer or an authorized representative shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the lift system meets all the applicable requirements of the current National School Transportation Specifications and Procedures.



WHEELCHAIR OR MOBILITY AID ENVELOPE

C. Vehicle ramp

1. If a ramp is used, it shall be of sufficient strength and rigidity to support the special device, occupant and attendant(s). It shall be equipped with a

protective flange on each longitudinal side to keep the special device on the ramp.

2. The surface of the ramp shall be constructed of non-skid material.

3. The ramp shall be equipped with handles and shall be of weight and design to permit one person to put the ramp in place and return it to its storage place.

4. Ramps used for emergency evacuation purposes may be installed in raised floor buses by manufacturers. They shall not be installed as a substitute for a lift when a lift is capable of serving the need.

REGULAR SERVICE ENTRANCE

A. On power lift-equipped vehicles, steps shall be the full width of the step well, excluding the thickness of the doors in the open position.

B. A suitable device shall be provided to assist passengers during ingress and egress. This device shall allow for easy grasping or holding and shall have no openings or pinch points that might entangle clothing, accessories or limbs.

RESTRAINING DEVICES

A. On power lift-equipped school buses with a GVWR of 10,000 pounds or more, seat frames may be equipped with attachment points to which belt assemblies can be attached for use with child safety restraint systems (CSRSs) that comply with FMVSS No. 213, *Child Restraint Systems*. Any belt assembly anchorage shall comply with FMVSS No. 210, *Seat Belt Assembly Anchorages*.

B. Alternatively, a child restraint anchorage system that complies with FMVSS No. 225, *Child Restraint Anchorage Systems*, may be installed.

C. Seat belt assemblies, if installed, shall conform to FMVSS No. 209, *Seat Belt Assemblies*.

D. Child safety restraint systems, which are used to facilitate the transportation of children who in other modes of transportation would be required to use a child, infant or booster seat, shall conform to FMVSS No. 213.

SEATING ARRANGEMENTS

Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall meet the requirements of FMVSS No. 222, *School Bus Passenger Seating and Crash Protection*.

SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIRS AND WHEELCHAIR-SEATED OCCUPANTS

For purposes of understanding the various aspects and components of this section, the term *securement and tiedown* and the phrases *securement system or tiedown system* are used exclusively in reference to the devices that anchor the wheelchair to the vehicle. The term *restraint* and the phrase *restraint system* are used exclusively in reference to the equipment that is intended to limit the movement of the wheelchair occupant in a crash or sudden maneuver. The term *wheelchair tiedown and occupant restraint system (WTORS)* is used to refer to the total system that secures the wheelchair and restrains the wheelchair occupant.

A. WTORS—general requirements:

1. A wheelchair tiedown and occupant restraint system installed in specially equipped school buses shall be designed, installed, and operated for use with forward-facing wheelchair-seated passengers and shall comply with all applicable requirements of FMVSS 222, *School Bus Passenger Seating and Crash Protection*, and SAE J2249, *Wheelchair Tiedown and Occupant Restraint Systems for Use in Motor Vehicles.*[1]

2. The WTORS, including the anchorage track, floor plates, pockets or other anchorages, shall be provided by the same manufacturer or shall be certified to be compatible by manufacturers of all equipment/systems used.

3. Wheelchair securement positions shall be located such that wheelchairs and their occupants do not block access to the lift door.

4. A device for storage of the WTORS shall be provided. When the system is not in use, the storage device shall allow for clean storage of the system, shall keep the system securely contained within the passenger compartment, shall provide reasonable protection from vandalism and shall enable the system to be readily accessed for use.

5. The WTORS, including the storage device, shall meet the flammability standards established in FMVSS No. 302, *Flammability of Interior Materials*.

6. The following information shall be provided with each vehicle equipped with a securement and restraint system:

[1] SAE J2249 is currently being updated and moved to Section 18 of ANSI/RESNA Wheelchair Standards, Volume 4, Wheelchairs and Transportation. The new version is expected to be available by December 2006.

a. A phone number where information can be obtained about installation, repair and parts. (Detailed written instructions and a parts list shall be available upon request.)

b. Detailed instructions regarding use, including a diagram showing the proper placement of the wheelchair/mobility aids and positioning of securement devices and occupant restraints, including correct belt angles.

7. The WTORS manufacturer shall make training materials available to ensure the proper use and maintenance of the WTORS. These may include instructional videos, classroom curriculum, system test results or other related materials.

B. Wheelchair Securement/Tiedown: (See 49 CFR 571.403, S5.4.1, S5.4.2.)

Each wheelchair position in a specially equipped school bus shall have a minimum clear floor area of 30 inches laterally by 48 inches longitudinally. Additional floor area may be required for some wheelchairs. Consultation between the user and the manufacturer is recommended to ensure that adequate area is provided.

C. Occupant restraint system: (See 49 CFR 571.403, S5.4.3, S5.4.4.)

SPECIAL LIGHT

Doorways in which lifts are installed shall be equipped with a special light that provides a minimum of two foot-candles of illumination measured on the floor of the bus immediately adjacent to the lift during lift operation.

SPECIAL SERVICE ENTRANCE

A. Power lift-equipped bodies shall have a special service entrance to accommodate the power lift. **Exception:** A special service entrance shall not be required if the lift is designed to operate within the regular service entrance, is capable of stowing such that the regular service entrance is not blocked in any way and a person entering or exiting the bus is not impeded in any way.

B. The special service entrance and door shall be located on the right side of the bus and shall be designed so as not to obstruct the regular service entrance. **Exception:** A special service entrance and door may be located on the left side of the bus only if the bus is used only to deliver students to the left side of one-way streets and its use is limited to that function.

C. The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of

the floor opening to support the floor and give the same strength as other floor openings.

D. A drip molding shall be installed above the special service entrance to effectively divert water from the entrance.

E. Door posts and headers at the special service entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for the special service entrance.

SPECIAL SERVICE ENTRANCE DOORS

A. A single door or double doors may be used for the special service entrance.

B. A single door shall be hinged to the forward side of the entrance unless this would obstruct the regular service entrance. If the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism that will prevent the door from swinging open should the primary door latch fail. If double doors are used, the system shall be designed to prevent the door(s) from being blown open by the aerodynamic forces created by the forward motion of the bus, and/or shall incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.

C. All doors shall have positive fastening devices to hold doors in the "open" position when the special service entrance is in use.

D. All doors shall be weather sealed.

E. When manually operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three one-point fastening devices. One shall be to the header, one to the floor line of the body, and the other shall be into the rear door. The door and hinge mechanism shall have strength that is greater than, or equivalent to, the strength of the emergency exit door.

F. Door materials, panels and structural components shall have strength equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.

G. Each door shall have windows set in a waterproof manner that are visually similar in size and location to adjacent non-door windows. Glazing shall be of the same type and tinting (if applicable) as standard fixed glass in other body locations.

H. Door(s) shall be equipped with a device that will actuate an audible or flashing signal located in the driver's compartment when the door(s) is not securely closed and the ignition is in the "on" position.

I. A switch shall be installed so that the lift mechanism will not operate when the lift platform door(s) is closed.

J. Special service entrance doors shall be equipped with padding at the top edge of the door opening. The padding shall be at least three inches wide and one inch thick and shall extend the full width of the door opening.

SUPPORT EQUIPMENT AND ACCESSORIES

A. Each specially equipped school bus that is set up to accommodate wheelchairs or other assistive or restraint devices with belts attached shall contain at least one webbing cutter properly secured in a location within reach of the driver while belted into his/her driver's seat. The belt cutter shall be durable and designed to prevent the operator or others from being cut during use.

B. Special equipment or supplies that are used in the bus for mobility assistance, health support or safety purposes shall meet local, federal and engineering standards that may apply, including requirements for proper identification.

Equipment that may be used for these purposes includes, but is not limited to:

1. Wheelchairs and other mobile seating devices. (See subsection on Securement and Restraint System for Wheelchairs and Wheelchair-seated Occupants.)

2. Crutches, walkers, canes and other ambulating devices to assist ambulation.

3. Medical support equipment. This may include respiratory devices, such as oxygen bottles (which should be no larger than 22 cubic feet for liquid oxygen and 38 cubic feet for compressed gas) or ventilators. Tanks and valves should be located and positioned to protect them from direct sunlight, bus heater vents or other heat sources. Other equipment may include intravenous and fluid drainage apparatus.

C. All portable equipment and special accessory items, including the equipment listed above, shall be secured at the mounting location to withstand a pulling force of five times the weight of the item or shall be retained in an enclosed, latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure of the box's integrity and securement to the bus. **Exception:** If these specifications

provide specific requirements for securement of a particular type of equipment (e.g., wheelchairs), the specific specification shall prevail.

TECHNOLOGY AND EQUIPMENT, NEW

It is the intent of these specifications to accommodate new technologies and equipment that will better facilitate the transportation of students with special needs. New technology and equipment is acceptable for use in specially equipped vehicles if:

A. It does not compromise the effectiveness or integrity of any major safety system. (Examples of safety systems include, but are not limited to, compartmentalization, the eight-lamp warning system, emergency exits and the approved color scheme.)

B. It does not diminish the safety of the bus interior.

C. It does not create additional risk to students who are boarding or exiting the bus or are in or near the school bus loading zone.

D. It does not require undue additional activity and/or responsibility for the driver.

E. It generally increases efficiency and/or safety of the bus, generally provides for a safer or more pleasant experience for the occupants and pedestrians in the vicinity of the bus and/or generally assists the driver and makes his/her many tasks easier to perform.